

Panguitch City

Transportation Master Plan



DRAFT FINAL REPORT
April 27, 2004

Prepared By
UDOT Planning Section
4501 South 2700 West
Salt Lake City, Utah 84114-3600

Panguitch City

Transportation Master Plan

Mayor. Janet Oldham

City Council..... Randy Hatch
Art Cooper
Dennis Orton
John Orton
Leland Pollock

City Manager..... Allen K. Henrie

DRAFT FINAL REPORT
April 27, 2004

Prepared By
UDOT Planning Section
4501 South 2700 West
Salt Lake City, Utah 84114-3600

Table of Contents

1. Introduction

- 1.1. Background
- 1.2. Study Need
- 1.3. Study Purpose
- 1.4. Study Area
- 1.5. Study Process

2. Existing Conditions

- 2.1. Land Use
- 2.2. Environmental
- 2.3. Socio-Economic
- 2.4. Functional Street Classification
- 2.5. Bridges
- 2.6. Traffic Counts
- 2.7. Traffic Accidents
- 2.8. Bicycle and Pedestrian
- 2.9. Public Transportation
- 2.10. Freight
- 2.11. Aviation Facilities and Operations
- 2.12. Revenue
 - 2.12.1. State Class B and C Program
 - 2.12.2. Federal Funds
 - 2.12.3. Local Funds
 - 2.11.4 Private Sources

3. Future Conditions

- 3.1. Land Use and Growth
 - 3.1.1. Population and Employment Forecasts
 - 3.1.2. Future Land Use
- 3.2. Traffic Forecast

4. Transportation Improvement Projects

- 4.1. Recommended Projects

4.2. Revenue Summary

4.2.1. Federal and State Participation

4.2.2. City Participation

4.2.3. Impact Fees, Exactions and Special Improvement Districts

4.3. Financial Potential

5. Planning Issues and Guidelines

5.1. Guidelines and Policies

5.1.1. Access Management

5.1.1.1. Definition

5.1.1.2. Access Management Techniques

5.1.1.3. Where to Use Access Management

5.1.2. Context Sensitive Solutions

5.1.3. Recommended Roadway Cross Sections

5.2. Bicycles and Pedestrians

5.3. Enhancement Program

5.4. Transportation Corridor Preservation

5.4.1. Definition

5.4.2. Corridor Preservation Techniques

5.5.2.1 Acquisition

5.5.2.2 Exercise of Police Powers

5.5.2.3 Voluntary Agreements and Governmental Inducements

Appendix

The Upper Sevier Community Trails Plan

1. Introduction

1.1. Background

Panguitch is the county seat for Garfield County and is built on the south side of the Panguitch Valley, on the north slope of the mountains between Panguitch Creek on the west and the Sevier River on the east.

When settled in 1894 the city was called Fairview and later renamed to Panguitch. The name is Piute Indian for “big fish.” because of the many big fish Native-Americans caught harvested from Panguitch Lake. The city is at an elevation of 6,666 feet with an arid climate and with very cold winters which can last as long as seven (7) months. The terrain is rocky and the soil fertile.

In March 1864 fifty-four pioneer families led by Jens Neilson arrived in the area from Parowan and other settlements. They came over much the same route followed later by Highway 20. The city was abandoned in 1866 during the Black Hawk War. In 1870 Brigham Young made a trip through the valley and decided it was time to resettle. With a population of 500, Panguitch was incorporated in 1899. Agriculture was the basic economy.

Many of the city’s buildings are built of locally made red brick. In 1940 Panguitch reached its largest population of 2,500. At the present time, tourism is becoming the largest industry because of the city’s close proximity to Bryce Canyon and other national parks, as well as great trout fishing at Panguitch Lake. There is also camping, a ski resort, and forests nearby. Homecoming, July 24th, is the largest local celebration. The celebration includes a parade, reunions (family and class), community breakfast, pit barbeque dinner, races, games, rodeo, and dances.

This information was provided from www.utahtravelcenter.com, in an article written by Dorothy Houston.

There are two major arterials, two minor arterials, and one collector in the study area. The largest major arterial in the area is US-89 throughout the entire study area. The majority of the traffic in Panguitch runs along US-89. It travels generally north/south and is the major link to Salt Lake City, Zion National Park, Kanab City, Arizona and the North Rim of the Grand Canyon. State Road 143 is a major collector into the city. It heads north/south toward Cedar Breaks Monument and Brian Head resort terminating at Interstate 15 near Parowan.

1.2. Study Need

The City of Panguitch has seen a 12.4% population increase within the last decade. From 1970 to 2000, the population increase was 20.8%. Population is expected to increase due to the increased interest in National Monuments. A well established transportation plan is essential for Panguitch City as tourist and recreational trips traveling to and through Panguitch increases.

Panguitch has an adopted General Plan. The Panguitch City General Plan briefly describes the plan for Panguitch City roads. With the increase in traffic already starting in the area, more than a brief plan is needed to address all of the transportation needs of Panguitch and the surrounding area.

Some of the major transportation issues in Panguitch City are as follows:

- Safety
- OHV traffic
- Bicycle and pedestrian traffic
- Signals
- City gateway aesthetics
- Internal circulation (mobility)
- Property access
- Truck traffic
- Speed limits

Panguitch City recognizes the importance of building and maintaining safe roadways, not only for the auto traffic but also for pedestrians and bicyclists.



1.3. Study Purpose

The purpose of this study is to develop a transportation master plan for Panguitch City and to evaluate the influence of the plan on the surrounding areas. This plan should be adopted by Panguitch City as part of the city's General Plan. With the transportation master plan in place the city may qualify for priority funding of pilot programs from the Utah Quality Growth Commission.

The primary objective of the study is to establish a solid transportation master plan to guide future developments and roadway expenditures. The plan includes two major components:

- Short-range action plan
- Long-range transportation plan

Short-range improvements focus on specific projects to improve deficiencies in the existing transportation system. The long-range plan will identify those needs that require significant advance planning and funding to implement and are necessary to accommodate future traffic demand within the study area.

1.4. Study Area

The study area includes Panguitch City, and land adjacent to it that is in Garfield County. A general location map is shown in Figure 1 (p.4). A more detailed map of the study area and city limits is shown in Figure 2 (p.1). The study area was developed by Panguitch City and approved by the Panguitch City Transportation Master Plan Technical Advisory Committee.

The roadway network within the study area includes US-89, and SR-143. Each of these roads provides the vital function of connecting Panguitch City to the rest of Garfield County and the State. The largest major arterial in the area is US-89. The majority of the traffic in Panguitch runs along US-89. It travels into the city from the east then turns north along Main Street and is the major link to Salt Lake City, Kanab City, Zion National Park, Arizona, the North Rim of the Grand Canyon. State Road 143 is a major collector into the city. It heads north/south near Cedar Breaks Monument and Brian Head Resort terminating at Interstate 15 near Parowan. There are no other Federal Aid eligible roads in the area of the study. The local road network is also shown in Figure 2.

Figure 1. Panguitch Study Area Location

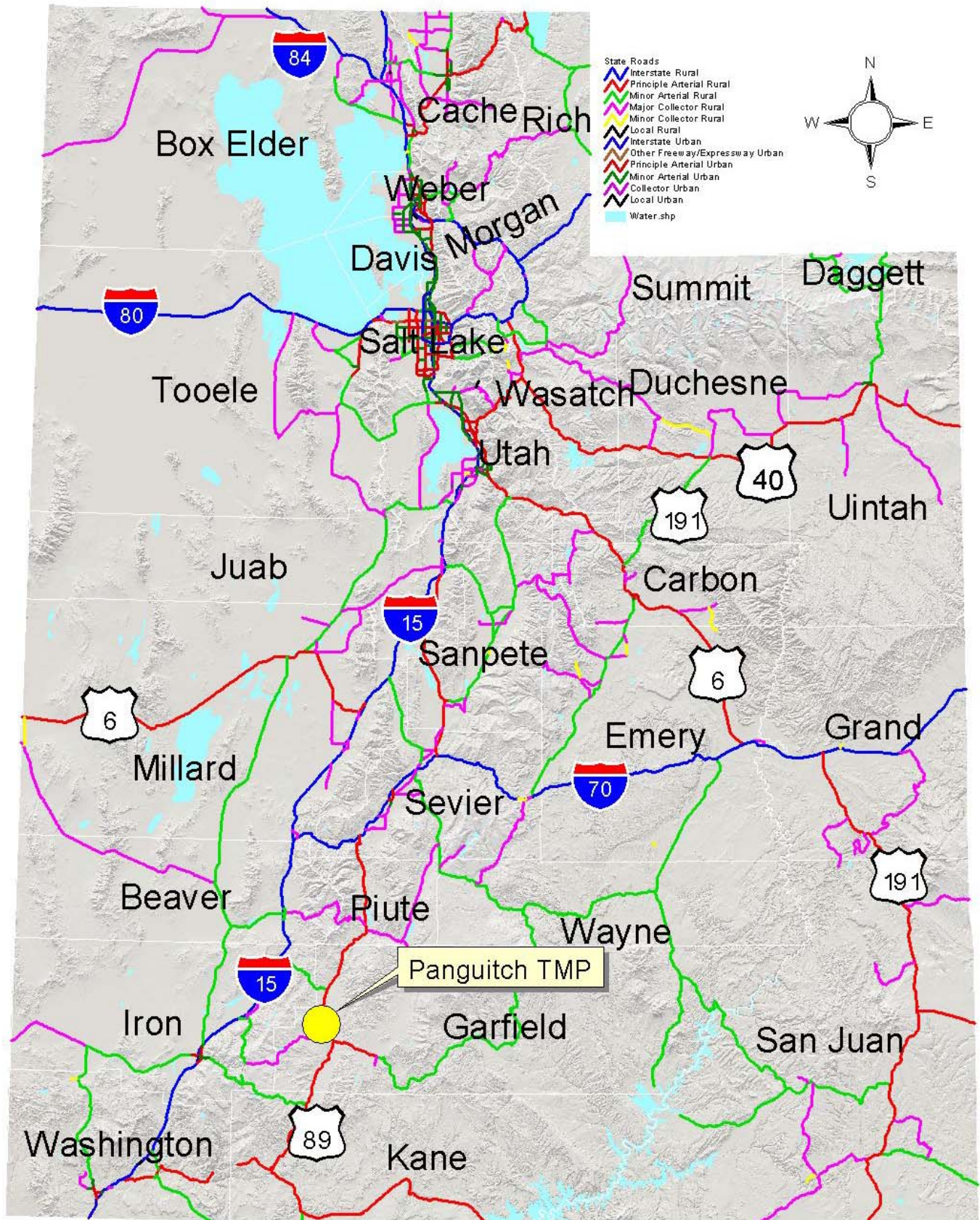
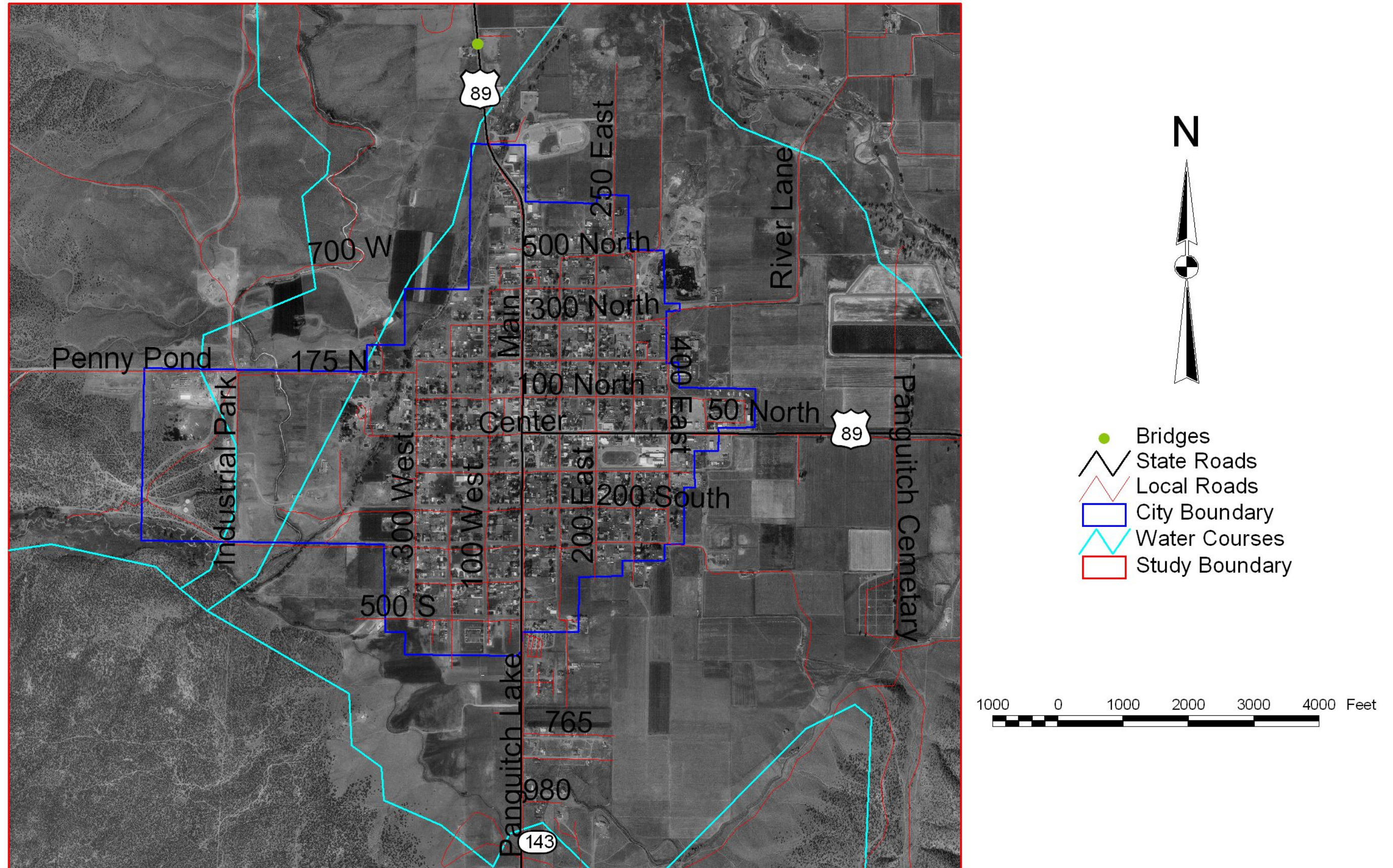


Figure 2. Panguitch Study Area Vicinity



1.5. Study Process

The study, which began in March 2004, is being administered and financed by UDOT Planning. It is being conducted under the guidance of the Planning, Zoning, and City Officials, which will be referred to as the Technical Advisory Committee or “TAC” for this document, consisting of 19 members, listed below:

Janet Oldham	Mayor, Panguitch City
Allen Henrie	Panguitch City Manager
Dave Owens	Panguitch City Public Works Director
Kory Owens	Panguitch City
Bruce Dalton	UDOT Maintenance Station Supervisor
Elaine Baldwin	Citizen
Mike Tebbs	Citizen
Troy Pollock	Citizen
Joseph Black	Forest Engineer
Art Cooper	City Council
Than Cooper	Garfield County Sheriff
Denny Orton	City Council



Members of the TAC wait to vote for projects.

The study process for the Panguitch City Transportation Master Plan (TMP) is depicted in Figure 3 (p.7). Three basic parts of the process are: (1) inventory and analyze existing conditions, (2) is to identify the need, opportunities, and constraints for establishing and implementing the transportation plans. This process involves the participation of the TAC for guidance, review, evaluation and recommendations in developing the transportation plans.

The first component of the study process evaluates the existing traffic, infrastructure, population, and employment conditions. Evaluation of

existing conditions provides a basis for the analysis of future conditions. The second component of the study process will forecast the future development of Panguitch City. Population and employment forecasts will be developed for the two planning horizon years. The location and concept of projects will be developed.

The TAC will be involved in each part of the study process and their comments are incorporated into the study's draft final report. The remainder of the draft final report will focus on the recommendation and implementation portion of the transportation plan program. Transportation projects that will be recommended for the short-term and long-range needs are developed based on the TAC's recommendations and concurrence.

The schedule presented in Figure 3 (below) outlines the time line of the elements of the study process that are required for the completion of the document.

The study process allows for the solicitation of input from the public at two TAC workshops. This public participation element is included in the study process to ensure that any decisions made regarding this study are acceptable to the community.

Before the public meetings are conducted, the UDOT team collects existing data. The preliminary analysis of the data is done to help the TAC in their efforts.

The public participation portion of this study is planned to occur at three stages during the development of the final report. The first TAC workshop is conducted to inventory and analyze existing conditions and identify transportation improvements. The second TAC workshop is conducted after the future conditions are analyzed and prioritized transportation plans and implementation schedules have been developed. Finally, public comment is solicited by Panguitch City.

The TAC is expected to recommend those comments that are to be incorporated into the report and applicable to the goals of this study. The draft final report and the final report will be submitted to the TAC for approval.

Upon TAC approval of the draft report, UDOT will prepare and submit the final report to the Mayor and City Council of Panguitch City for approval. The final report will describe the study process, findings and conclusions, and will document the analysis of the recommended transportation system projects and improvements.

Figure 3. Project Schedule

TASK	Preliminary	Initial Public Input	Refine Ideas and Concepts	Finalize Document	Plan Adoption /Follow Through
Preliminary Data Gathering					
First Meeting					
Inventory Existing Condition					
Update Document					
Second Meeting					
Finalize Document					
Document Delivery					
Plan Adoption					
Follow Through					

2. Existing Conditions

An inventory and evaluation of existing conditions within the study area was conducted so that existing transportation problems could be identified and a framework for the analysis of future conditions could be accomplished. The results of the inventory and evaluation follow.

2.1. Land Use

In order to analyze and forecast traffic volumes, it is essential to understand the land use patterns within the study area. The city land use is described in the following paragraphs.

The Panguitch City General Plan outlines where each of the zones are and how the City will grow in the future. Most of the city is zoned Residential. The residential is located adjacent to the Commercial along US-89 and Center Street. There are two industrial pockets in the north and northeast. The largest industrial zone is in the west adjacent to Industrial Park Road. The majority of the commercial zoning is located from the intersection of Center Street north along US-89 to the city boundary. The city has also zoned commercial along Center Street from the intersection with US-89 east to the city boundary. There are also two pockets of Commercial near the southern city boundary on US-89. The rest of the zoning can be seen in the Panguitch City General Plan. Most of the local trips will be produced from the residential areas that are attracted to the business along US-89 and Center Street. These zones will be where the highest traffic is generated.

The Panguitch City Zoning map follows on the next page.

2.2. Environmental

In Utah, there are a variety of local environmental issues. Some of the environmental concerns around the State are wetlands, endangered species, archeological sites, and geological sites among other issues.

Each city and county needs to look at the environmental issues in their areas on a case-by-case basis. Environmental concerns should be addressed when looking at an area for any type of improvement to the transportation system. Specific issues for Panguitch City will not be discussed here, as they are more related to specific projects as they are built. There are many resources that can help local entities to determine what issues need to be addressed and how any problems that may exist can be resolved.

2.3. Socio-Economic (Census Brief: Cities and Counties of Utah, May 2001)

Panguitch ranks 111th for population in the State of Utah, out of 235 incorporated cities and towns. Historical growth rates have been identified for this study, because past growth is usually a good indicator of what might occur in the future. Figure 4 (p. 10) identifies the population growth over the past 50 years for the State of Utah, Garfield County and Panguitch City. Figure 5 (p. 12) identifies that population change in Panguitch City has ranged from minus 4.4% between 1950 and 1960 to gaining 12.4.8% between 1990 and 2000, while growth in the State has gained between 18 and 38 percent during the past 50 years.

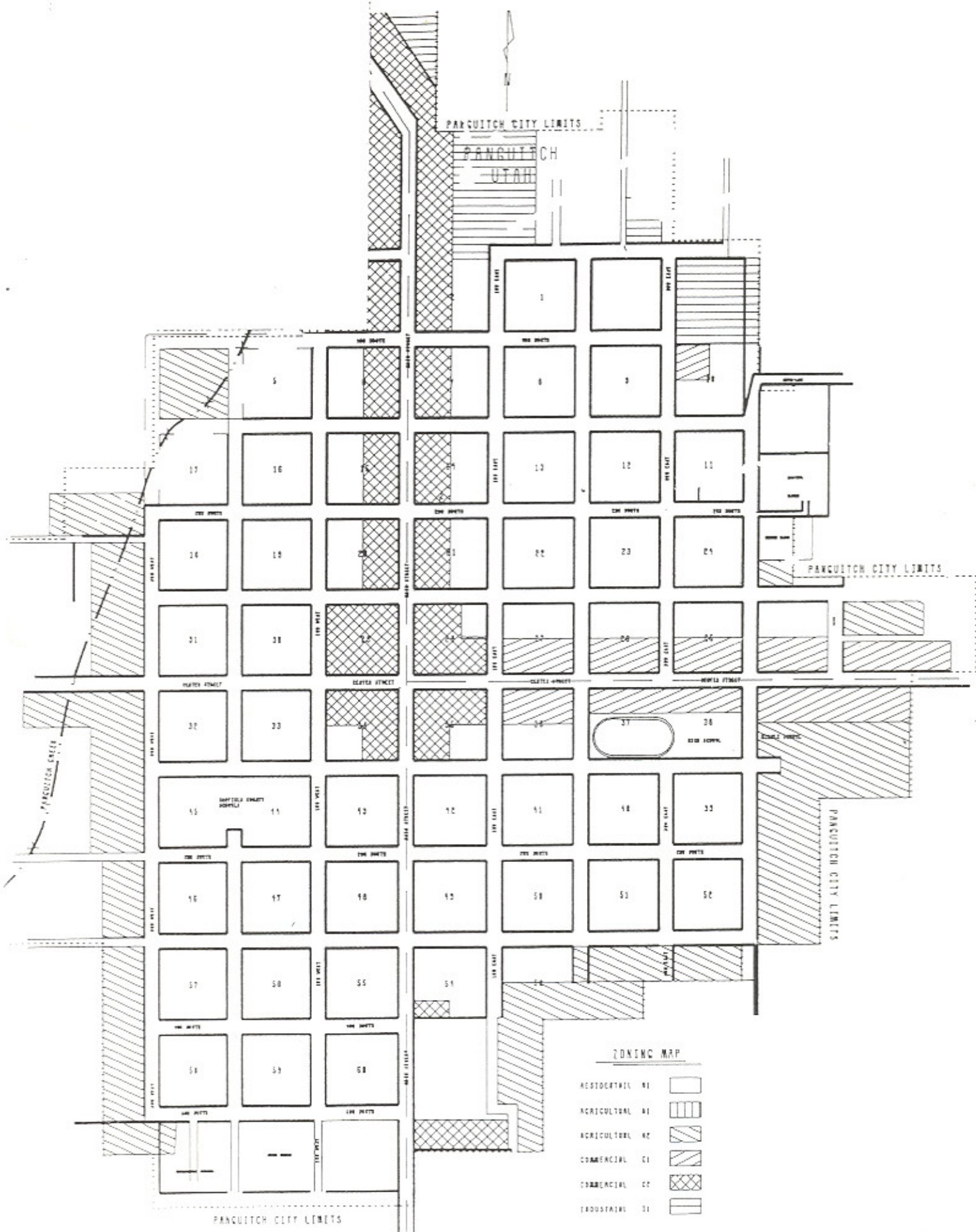
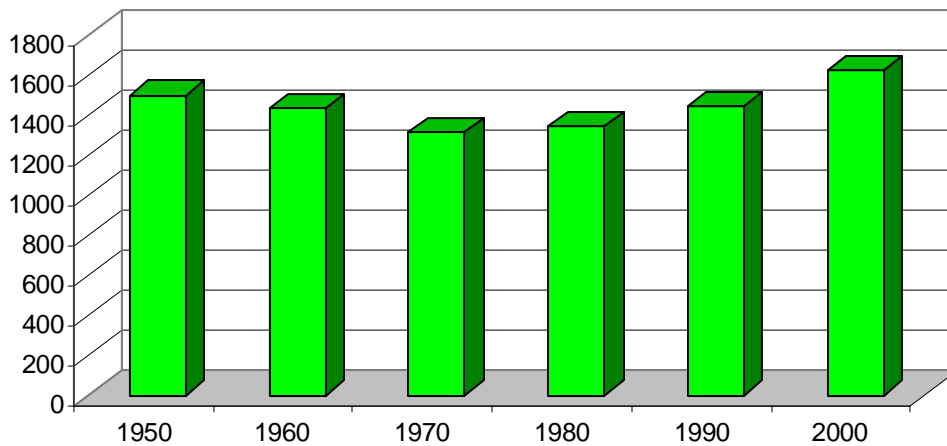


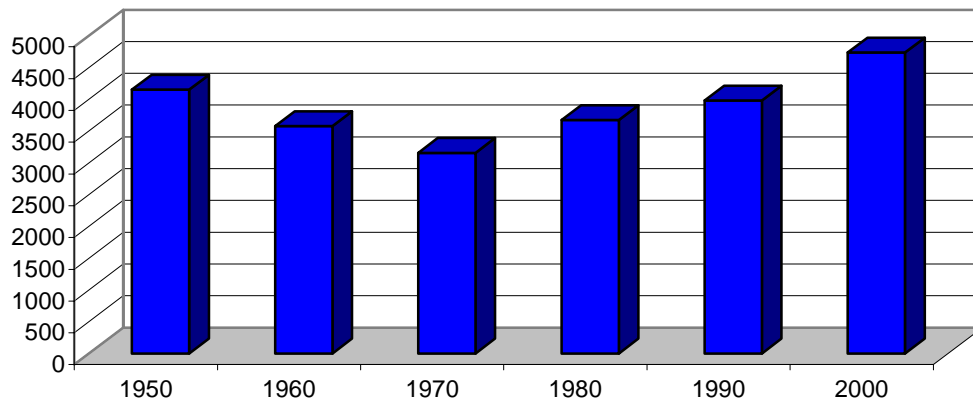
Figure 4. Population Data

Year	Population		
	Utah	Garfield County	Panguitch
1950	688862	4151	1501
1960	890627	3577	1435
1970	1059273	3157	1318
1980	1461037	3673	1343
1990	1722850	3980	1444
2000	2233169	4735	1623

Panguitch City Population



Garfield County Population



Source: U.S. Bureau of the Census
<http://www.governor.utah.gov/dea/OtherPublications.html>

Figure 6 (p. 13) identifies yearly population growth rates for the State of Utah and Garfield County.

Though the State population has grown every decade from 1950 until 2000, Garfield County had two decades of sharp declines in population from 1950 to 1970. Yet, from 1970 until 2000, the population of Garfield County has grown nearly 21% in population.

Panguitch City has some unique demographic characteristics when compared with the State, particularly with age and race demographics. In the 25 to 54-age category, the State is at 38.6% the County is at 27.0% and the City is at 35.9%. For the 65+-age category, the State is at 8.5%, the County is at 14.1% and the City is at almost 14.1%. The State's median age is 27.1 years and the County's median age is 33.8 years, City's median age is 31.6 years. The race demographics show a trend that is different from the state as well. The State has a smaller Non-Hispanic White population percentage, 85.3%, compared to the County at 95.0%, and to Panguitch City at 94.0%. Garfield County is more typical of the more rural parts of the State, which tends to have a smaller minority population. Another interesting statistic is that of Veteran status with State at 10.7%, County at 15.1%, and Panguitch City at 12.0%.

The 2000 median household income in Panguitch City is \$35,500, compared to the State median household income of \$45,726.

The unemployment rate in Panguitch City was 3.9 percent in 2000. Panguitch has had wider fluctuations than the State, but the average unemployment is a little higher than the State at 4.4%. According to the Utah Department of Employment Security (UDES), in 2000 there were approximately 651 employed people in Panguitch City or 56.8% of the population of Panguitch City. The city has 51 unemployed people which is 4.4% of the population. There are 2003 employed people in Garfield County or 58.5% percent of the population. The county has 177 people unemployed which is 5.2% of the population.

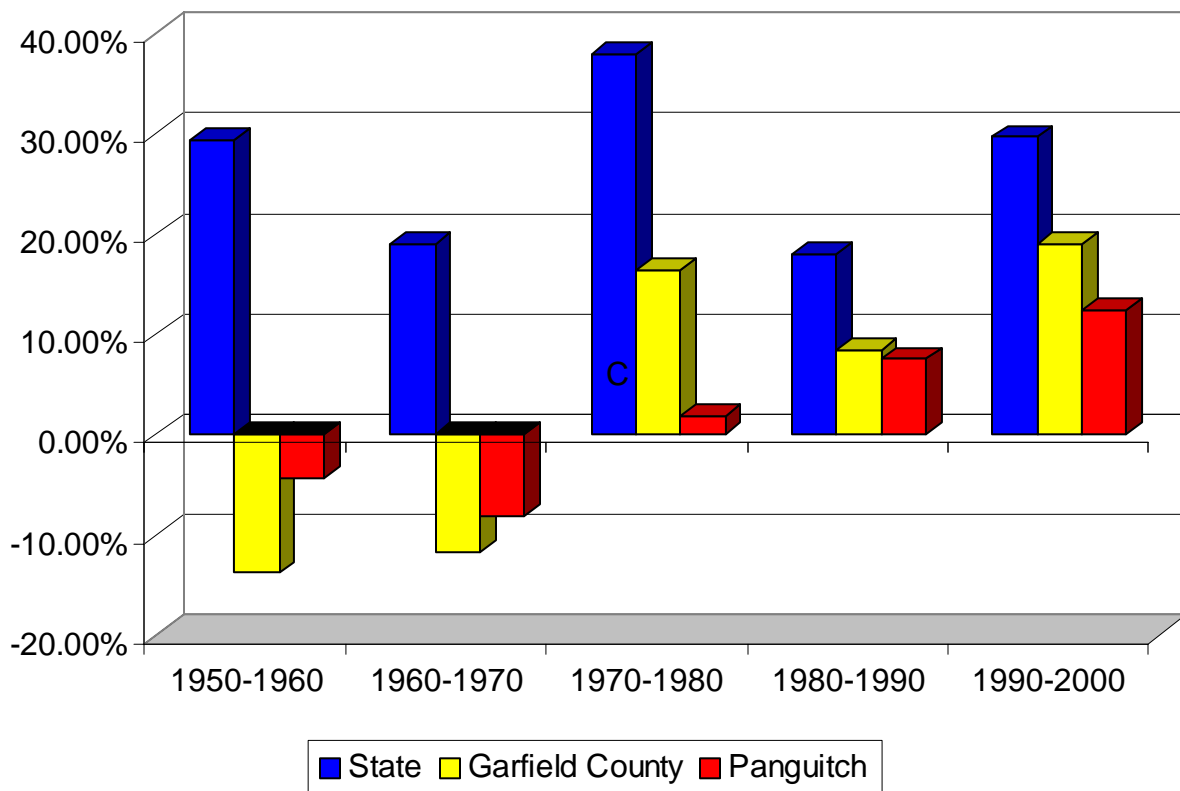
The majority of employees in Garfield County work in two primary employment sectors: Government and Services, as shown in Figure 8 (p. 15). These two sectors make up 40.25% of the labor force.

Figure 5. Population Change Data

Decade	State of Utah	Garfield County	Panguitch City
1950-1960	23.3%	-13.83%	-4.40%
1960-1970	18.9%	-11.74%	-8.15%
1970-1980	37.9%	16.34%	1.90%
1980-1990	17.9%	8.36%	7.52%
1990-2000	29.6%	18.97%	12.4%

Decennial Population Change

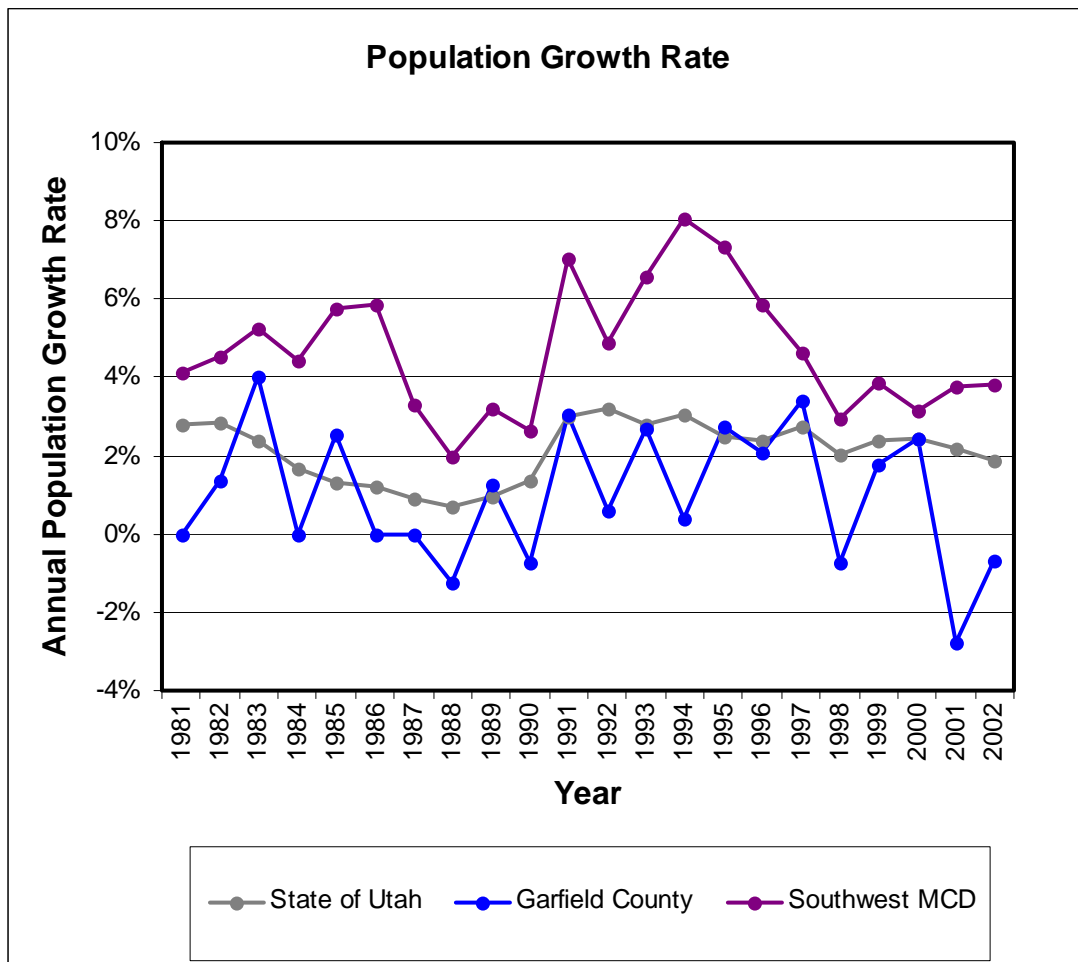
Decennial Population Change



Source Data: U.S. Bureau of the Census

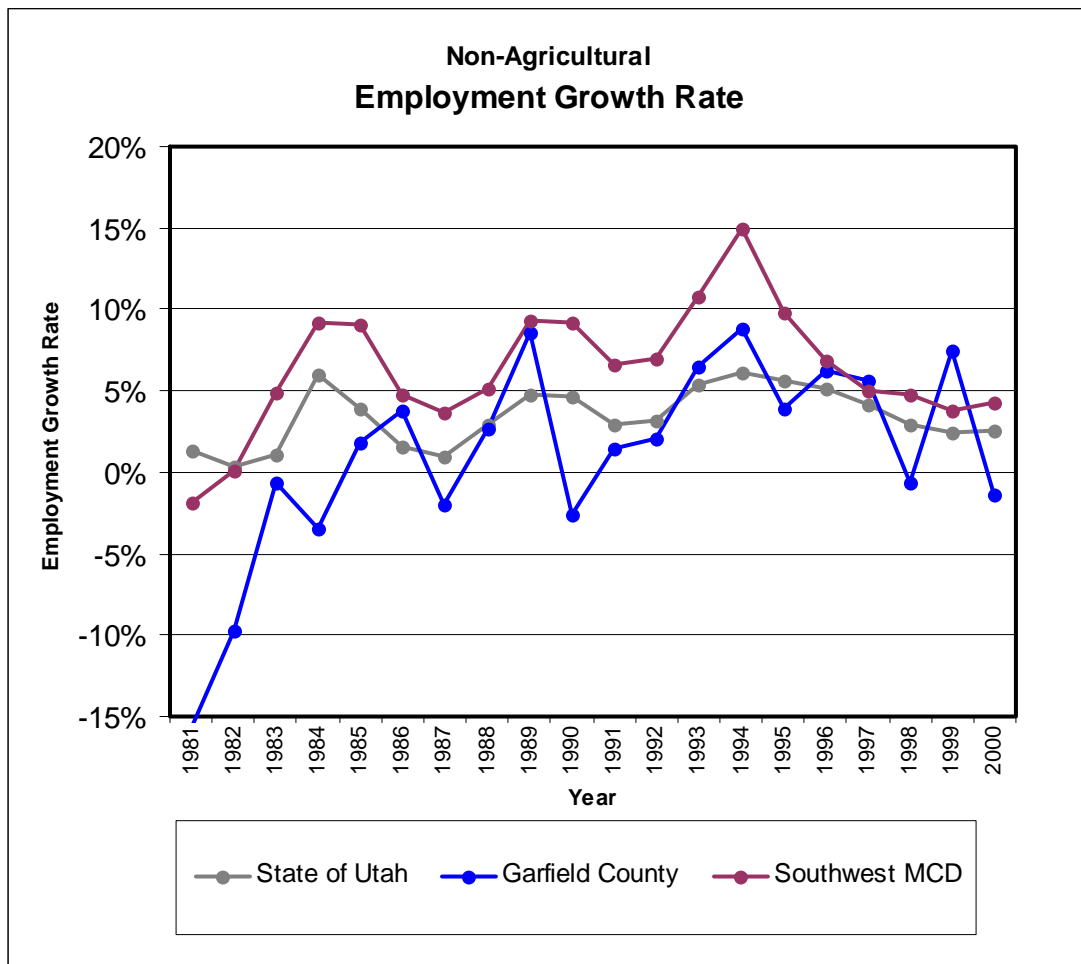
<http://www.governor.utah./dea/OtherPublications.html>

Figure 6. Population Growth Rate (1980-2000)



Source: Governors Office of Planning and Budget
<http://www.governor.utah.gov/dea>

Figure 7. Employment Growth Rate (1980-2000)



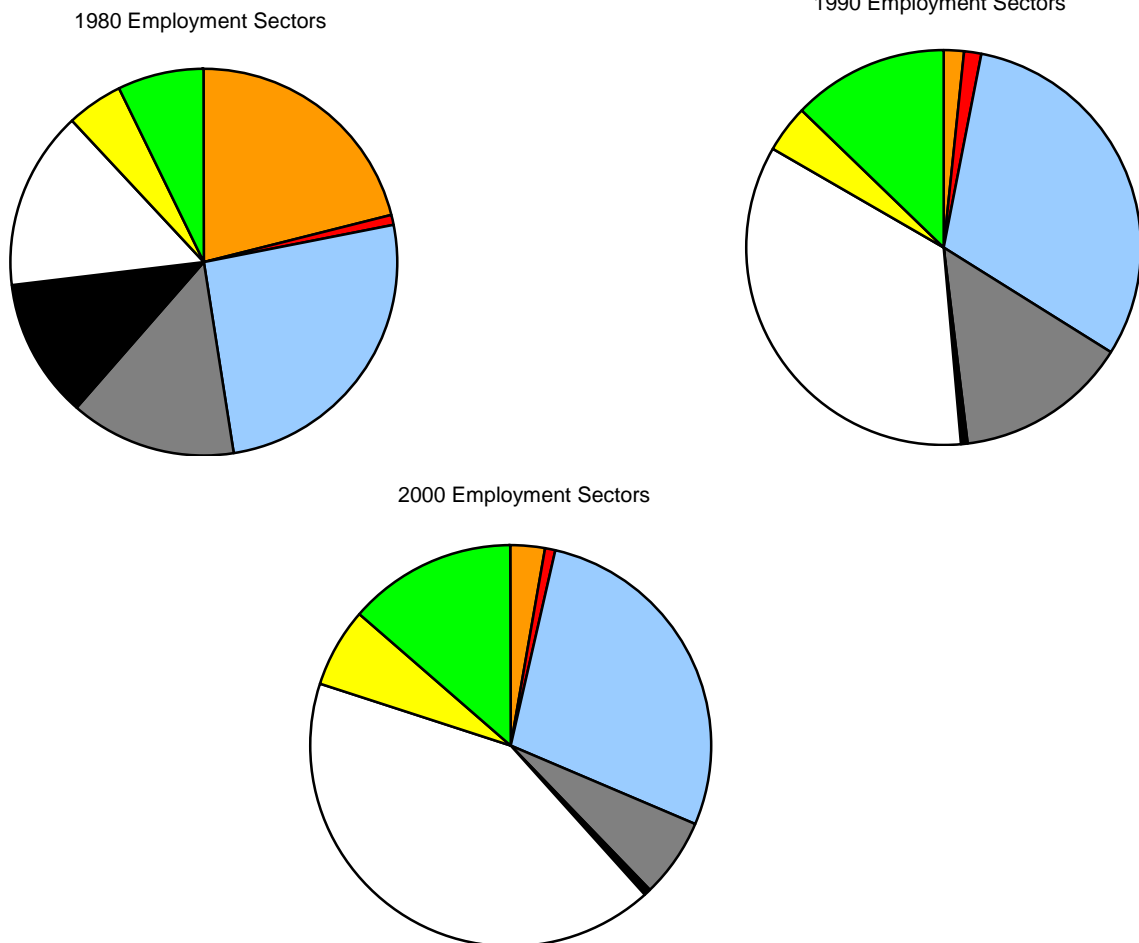
Source: Governors Office of Planning and Budget
<http://www.governor.utah.gov/dea>

Figure 8. Employment Sectors (1980-2000)

Sector	1980	1990	2000	Δ%
Construction	16.33%	1.06%	1.96%	-84.17%
FIRE	0.69%	1.02%	0.65%	-42.51%
Government	19.73%	21.25%	19.61%	63.10%
Manufacturing	10.64%	9.68%	4.64%	130.47%
Mining	9.05%	0.32%	0.39%	25.00%
Services	11.72%	23.94%	29.64%	233.46%
TCPU	3.62%	2.73%	4.48%	31.00%
Trade	5.51%	8.75%	9.64%	106.85%

FIRE – Financial, Insurance, Real Estate

TCPU – Tele-Communications and Public Utilities



Source: Governors Office of Planning and Budget
<http://www.governor.utah.gov/dea/HistoricalData.html>

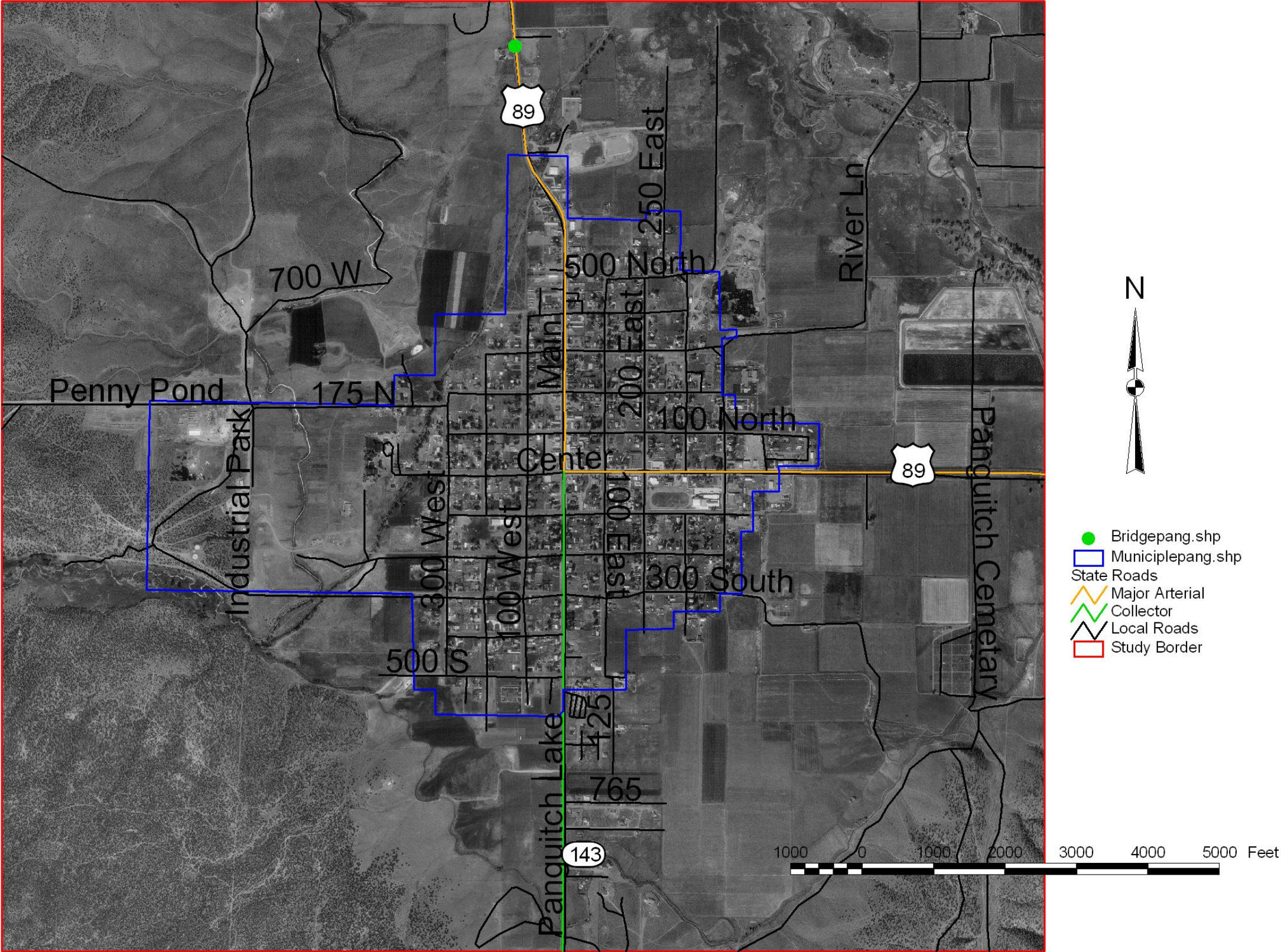
2.4. Functional Street Classification

This document identifies the current function and operational characteristics of the selected roadway network of Panguitch City. Functional street classification is a subjective means to identify how a roadway functions and operates when a combination of the roadway's characteristics are evaluated. These roadway characteristics include; roadway configuration, right-of-way, traffic volume, carrying capacity, property access, speed limit, roadway spacing, and length of trips using the roadway.

The six primary classifications were used in classifying selected roadways of Panguitch City are: Freeway, Major Arterial, Minor Arterial, Major Collector, Minor Collector and Local. A Freeway's function is to provide traffic mobility at higher speeds with limited access to adjacent properties. Arterials also provide a higher degree of traffic mobility with limited property access. Traffic from the local roads is gathered on to the Collector system, which provides a balance between mobility and property access trips. Local streets and roads serve property access based trips and these trips are generally shorter in length.

There is one major arterial and one major collector in the Panguitch study area. The major arterial that runs through the entire study area is US-89. US 89 runs north/south and is Panguitch City's Center and Main Streets. It carries the majority of the local traffic in Panguitch. The highway also carries substantial through traffic. State Road 143 is a Major Collector into the city. It heads north/south near Cedar Breaks Monument and Brian Head Park terminating at Interstate 15 near Parowan. These roads carry the bulk of the local traffic and recreational traffic into this scenic area of the state. There are no capacity improvements planned for these roads in the future.

Figure 9. Existing State Route Functional Street Classification



2.5. Bridges



Panguitch Creek Bridge on US-89 was replaced by UDOT in the early 1990's. Since then, there have been no significant flooding issues.

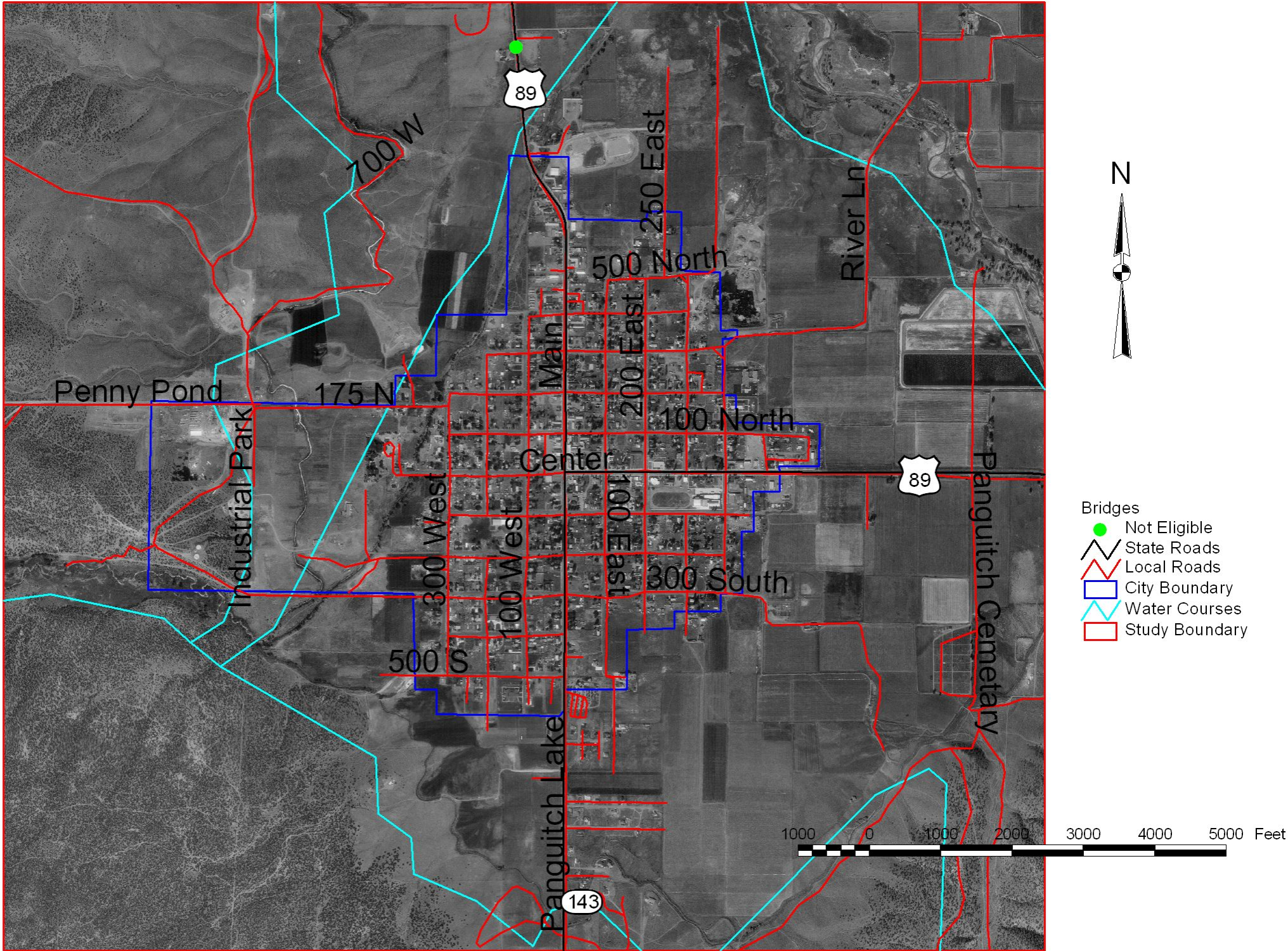
There is one bridge on the state system located in the study area. The sufficiency rating utilized by UDOT is a method of evaluating data that includes structural adequacy, serviceability, and need for public use. The result of this rating procedure is a score in which 100 represents an entirely sufficient bridge and zero represents an entirely insufficient or deficient bridge. Table 1 Bridges (p.20) shows this bridge's current Sufficiency Rating. The bridge on US-89 is not eligible for funding due to its high sufficiency ratings

Table 1. Bridges

Number	Location	Maximum Span	No. Lanes & Road Width	Sidewalk	Sufficiency Rating
0E 2035	Panguitch Creek			No	85

Source: Utah Department of Transportation/Structures Division

Figure 10. Bridge Sufficiency Ratings



2.6 Traffic Counts

Average daily traffic count data (2002) were provided by UDOT. Table 2 shows the traffic count data on the key roadways of the study area. The number of vehicles in both directions that pass over a given segment of roadway in a 24-hour period is referred to as the average annual daily traffic (AADT) for that segment.

Table 2. Average Annual Daily Traffic (2002)

Road	Segment	Year	AADT
US-89	East Panguitch to East INCL Panguitch	2002	2,992
US-89	East INCL Panguitch to Center of Panguitch	2002	6,190
US-89	Center of Panguitch to North INCL Panguitch	2002	7,725
US-89	North INCL Panguitch to North of Panguitch	2002	2,415
SR-143	South of Panguitch to South INCL Panguitch	2002	900
SR-143	South INCL Panguitch to US-89 in Panguitch	2002	2,130

Source: Utah Department of Transportation

**INCL=Incorporated City Limits*

These averages are for the entire year. However, Panguitch experiences a significant increase in traffic during the summer months. UDOT maintains 86 continuously operated automatic traffic recorders (ATR) throughout the state highway system. ATRs collect data continuously throughout the year in order to determine monthly, weekly, daily, and hourly traffic patterns.

The following points summarize the 2003 data from the ATR located north of the study area on US 89 south of Circleville at this location.

2003 Traffic on US-89

- July was the highest volume month, 48.7% higher than the average
- December was the lowest volume month, 39.9% lower than the average
- The highest daily volumes occurred on Friday, 11.0% higher than the average
- The lowest daily volumes occurred on Tuesday, 7.5% lower than the average

The peak month of July is consistent with a summer recreational usage. The month of June and August experienced 42.3% and 37.3% higher than average traffic respectively. April and October traffic are closest to the average. Friday being the highest day is consistent with the recreational use of US-89 north of Panguitch. A map illustrating existing and future traffic, peak season traffic, and roadway capacities is presented in the Traffic Forecast section 3.2. (p. 27)

2.7 Traffic Accidents

Crash data was provided by UDOT's database of reported crashes in 2002.—Table 3 (p. 21) summarizes the Crash Data statistics for those segments for the year 2002. Additional information includes the average daily traffic, the number of reported accidents, and the accident rates. The roadway segment accident rates were determined in terms of accidents per million vehicle miles traveled. The crash rates for each roadway segment are compared to the expected crash rate for similar facilities across the state.

The results show that Center Street (US 89 – milepost 131.18 to 131.74) has an actual crash rate of almost twice what is expected for that type of facility and location. These accidents are most likely due to the conflicts with vehicles turning in and out of the businesses along

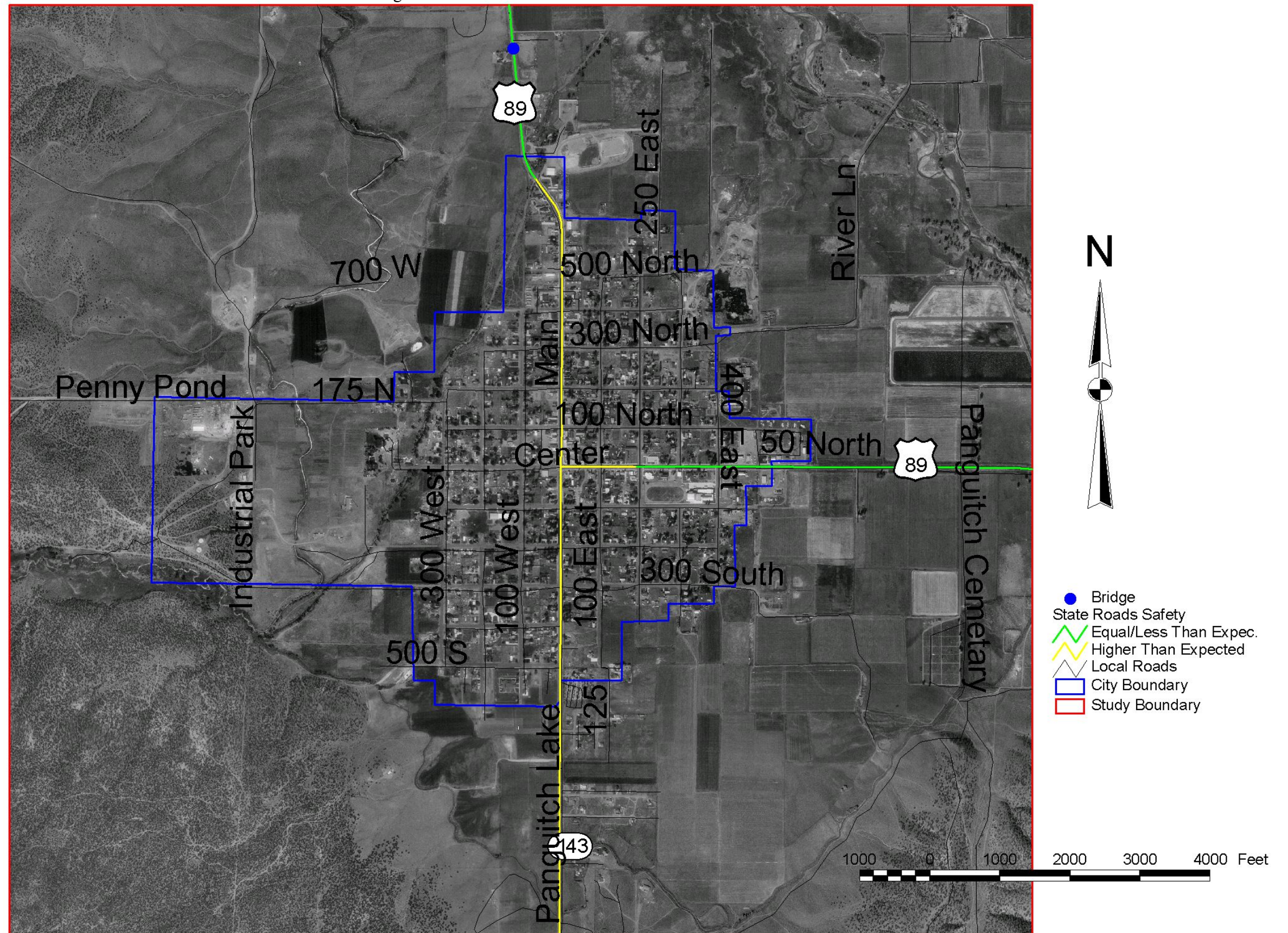
the corridor. The segment on US 89 north of SR 143 (milepost 131.74 to 132.63) has the same number of accidents, but it is nearly twice as long as Center Street. SR 143 from US 89 to about 1 mile south of town had no accidents reported in 2002.

Table 3. Crash Data 2002

Road	From Milepost	End Milepost	ADT (2002)	# Crashes (2002)	Crash Rate	
					Actual	Expected*
US-89	129.03	131.17	2,992	4	1.68	1.65
US-89	131.18	131.74	6,190	5	4.15	1.96
US-89	131.75	132.63	7,725	5	2.12	1.96
US-89	132.64	135	2,415	4	2	1.65
SR-143	49.15	50.2	900	0	0	2.53
SR-143	50.21	50.79	2,130	0	0	2.53

* Statewide average accident rates for functional class and volume group.

Figure 11 State Road Crash Rates





The team from UDOT helped lead the discussion for the Panguitch City's Transportation Master Plan.

2.8. Bicycle and Pedestrian (Also see Section 5.2)

The Federal Highways Administration recognizes the increasingly important role of bicycling and walking in creating a balanced, intermodal transportation system, and encourages state and local governments to incorporate all necessary provisions to accommodate bicycle and pedestrian traffic. As future project plans evolve, Panguitch City should embrace a “complete the street” philosophy that includes not only a transportation system for motorized vehicles, but also creates opportunities for non-motorized travel. The Panguitch community appears to support this concept, as was noted in comments received during the preparation

of the UDOT Long Range Plan, and the Cedar Breaks Corridor Study 2002 that included SR-143, SR-14, and SR-148. Many area residents voiced similar concerns with regards to creating additional bicycle facilities. Recommendations from those submitting comments included such things as: adding bike lanes; increasing the placement of guardrails; installing curb and gutter; addressing the need for passing lanes at some locations; dangerous vertical curves and site distance problems; and numerous respondents stated the need to increase shoulder width.

Biking/Trails –There are more on-street bicyclists than mountain biking enthusiasts traveling in and around the Panguitch area. The city currently does not have designated bike lanes and many locations lack adequate shoulder width to accommodate these on-street cyclists.

In 2002, a collaborative effort of the community, local, and national agencies resulted in a draft trails system document recognized as “The Upper Sevier Community Trails Plan”. This plan identifies and prioritizes trail routes in the Panguitch area. Considerations include providing looped trails; signage requirements; safety; equestrian usage; separated trails for livestock; non-motorized trails along the river; and the economic benefit of providing trails. In addition to these considerations, comments received at the workshop during development of the trails’ document addressed the need for ATV accommodations, and the possible need for fence installation at some locations.

Pedestrian – During the summer months, in addition to an increase in traffic, Panguitch also experiences a substantial increase in the number of pedestrians. Pedestrian safety has been, and continues to be, a concern for the city. A recent enhancement project for beautification and landscaping in Panguitch at US-89 and Center Street, also addressed measures to enhance pedestrian safety at that location. Traffic flow problems were identified and traffic-calming techniques, such as landscaped areas and stamped concrete, were implemented to create a safer experience for pedestrians.

2.9 Public Transportation

Panguitch does not have a fixed route bus system, but Garfield County does have one fixed route for senior citizens. The county Golden Age Center also operates a dial-a-ride program for the senior citizens to help them with their daily needs.

If Panguitch wanted to pursue fixed route transit service, the Utah State Enabling Act allows for cities or counties to organize transit districts. Once a transit district has been established the city or county can attempt to secure funding to provide transit service or they can vote to be annexed by close transit authority if one exists.

2.10 Freight

Located at the junction of U.S. 89 and State Route 143, Panguitch sees considerable north/south truck traffic on U.S. 89, while few trucks use S.R. 143 on account of both grades and curvature. US 89 is an important freight route linking the Southwest and Mexico with the Pacific Northwest and Canada, as well as distribution centers along Utah's Wasatch Front. This north/south truck traffic on U.S. 89 must negotiate a sharp turn in the middle of downtown Panguitch at the four-way stop controlling the junction with S.R. 143. This turn requires southbound trucks to use a very short left turn lane resulting in periodic congestion during times of heavier traffic. Northbound trucks must swing wide and use both lanes to negotiate the sharp, 90 degree right turn at the same location. This sharp corner is at the intersection of Main Street (U.S.89 & S.R. 143), and Center Street (U.S. 89 south from Panguitch).

2.11 Aviation Facilities & Operations

Panguitch Municipal Airport is located three miles northeast of town with access off of U.S. 89. This unattended airport sits at an elevation of 6,757 ft. and is equipped with a single 5,700 ft. long by 75 ft. wide, asphalt-paved and lighted north/south runway # 1/19, with an illuminated beacon operating from dusk to dawn. Current plans call for the design and construction of a paved taxiway parallel to the existing runway during the 2004 to 2007 time frame. No airline or air freight service is provided at the Panguitch Airport.

There is currently a project to repair the cracks in the runway during 2004.

2.12 Revenue

Maintenance of the existing transportation facilities and construction of new facilities come primarily from revenue sources that include the Panguitch City general fund, federal funds, transportation impact fees and State Class C funds.

Financing for local transportation projects consists of a combination of federal, state, and local revenues. However, this total is not entirely available for transportation improvement projects, since annual operating and maintenance costs must be deducted from the total revenue. In addition, the City is limited in their ability to subsidize the transportation budget from general fund revenues.

2.12.1 State Class B and C Program

The distribution of Class B and C Program monies is established by state legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Seventy-five percent of the funds derived from the taxes and fees

are retained by the Utah Department of Transportation for their construction and maintenance programs. The remaining twenty-five percent is made available to counties and cities.

Class B and C funds are allocated to each city and county by a formula based on population, road mileage, and land area. Class B funds are issued to counties, and Class C funds are issued to cities and towns. The table below identifies the method used to allocated B and C funds.

Apportionment Method of Class B and C Funds

Based on	Of
50%	Roadway Mileage
50%	Total Population

Class B and C funds can be used for maintenance and construction of highways, however thirty percent of the funds must be used for construction or maintenance projects that exceed \$40,000. Class B and C funds can also be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.

2.12.2 Federal Funds

Federal transportation monies are made available to cities and counties through the Utah Department of Transportation. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP). The Surface Transportation Program (STP) provides funding for any road that is functionally classified as a collector street or higher. STP funds can be used for a range of projects including rehabilitation and new construction. The Joint Highway Committee programs a portion of the STP funds for projects around the State for urban areas. A portion of the STP funds can be used in any area of the State, at the discretion of the State Transportation Commission.

Transportation Enhancement funds are administered by UDOT and allocated by UDOT based on a competitive application process. The Transportation Enhancement Committee (see pg. 37) reviews the applications and then a portion of those are passed to the State Transportation Commission. Transportation enhancements include 12 categories ranging from historic preservation, bicycle and pedestrian facilities, and water runoff mitigation. Other trails funds that are available are State Trails Funds.

The amount of money available for projects specifically in the study area varies each year depending on the planned projects in UDOT's Region Four headquartered in Richfield, Utah. As a result, federal aid program monies are not listed as part of the Panguitch study area's transportation revenue.

2.12.3 Local Funds

Panguitch City, like most cities, has utilized general fund revenues in its transportation program. Other options available to improve the City's transportation facilities could involve some type of bonding arrangement, either through the creation of a redevelopment district or a special improvement district. These districts are organized

for the purpose of funding a single, specific project that benefits an identifiable group of properties. Another source is through general obligation bonding arrangements for projects felt to be beneficial to the entire entity issuing the bonds.

2.12.4 Private Sources

Private interests often provide sources of funding for transportation improvements. Developers construct the local streets within the subdivisions and often dedicate right-of-way and participate in the construction of collector or arterial streets adjacent to their developments. Developers can also be considered as a possible source of funds for projects because of the impacts of the development, such as the need for traffic signals or street widening or for multi-modal facilities such as Bicycle and Pedestrian Pathways.

3 Future Conditions

3.1. Land Use and Growth

To support Panguitch's Transportation Master Plan as responsive to current and future needs of the area, the area's growth has been estimated and incorporated into the evaluation and analysis of future transportation needs. This is done by:

- Forecasting future population, employment, and land use;
- Projecting traffic demand;
- Forecasting roadway travel volumes;
- Evaluating transportation system impacts;
- Documenting transportation system needs; and
- Identifying improvements to meet those needs.

This chapter summarizes the population, employment, and land use projections developed for the project study area. Future traffic volumes for the major roadway segments are based on projections utilizing 20 years of traffic count history. The forecasted traffic data are then used to identify future deficiencies in the transportation system.

3.1.1 Population and Employment Forecasts

The Governor's Office of Planning and Budget developed and provided population and employment projections. The current population and employment levels, as well as the future projections for each are shown for Panguitch City and County in the following table:

Population and Employment

Year	City	County	
	Population	Population	Employment
2000	1,623	4,735	2,003
2030	2,573	6,841	4,992

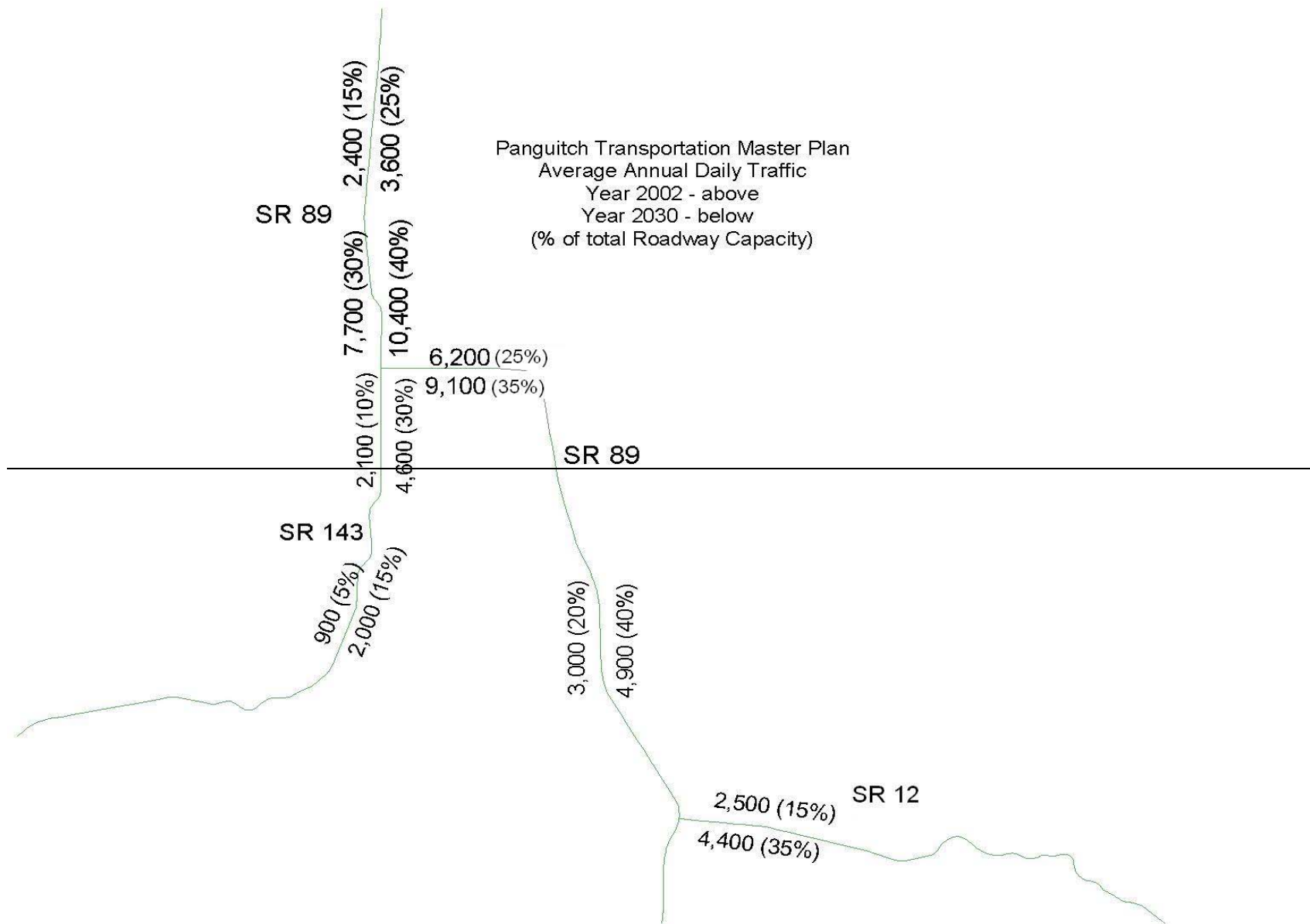
3.1.2 Future Land Use

The city has an annexation plan that describes where it plans to grow. The focus of future annexation is north along US 89 to the Fairgrounds. It also anticipates annexing west along Industrial Park Road to the Industrial Park and County Jail. The city also plans to annex south along SR 143.

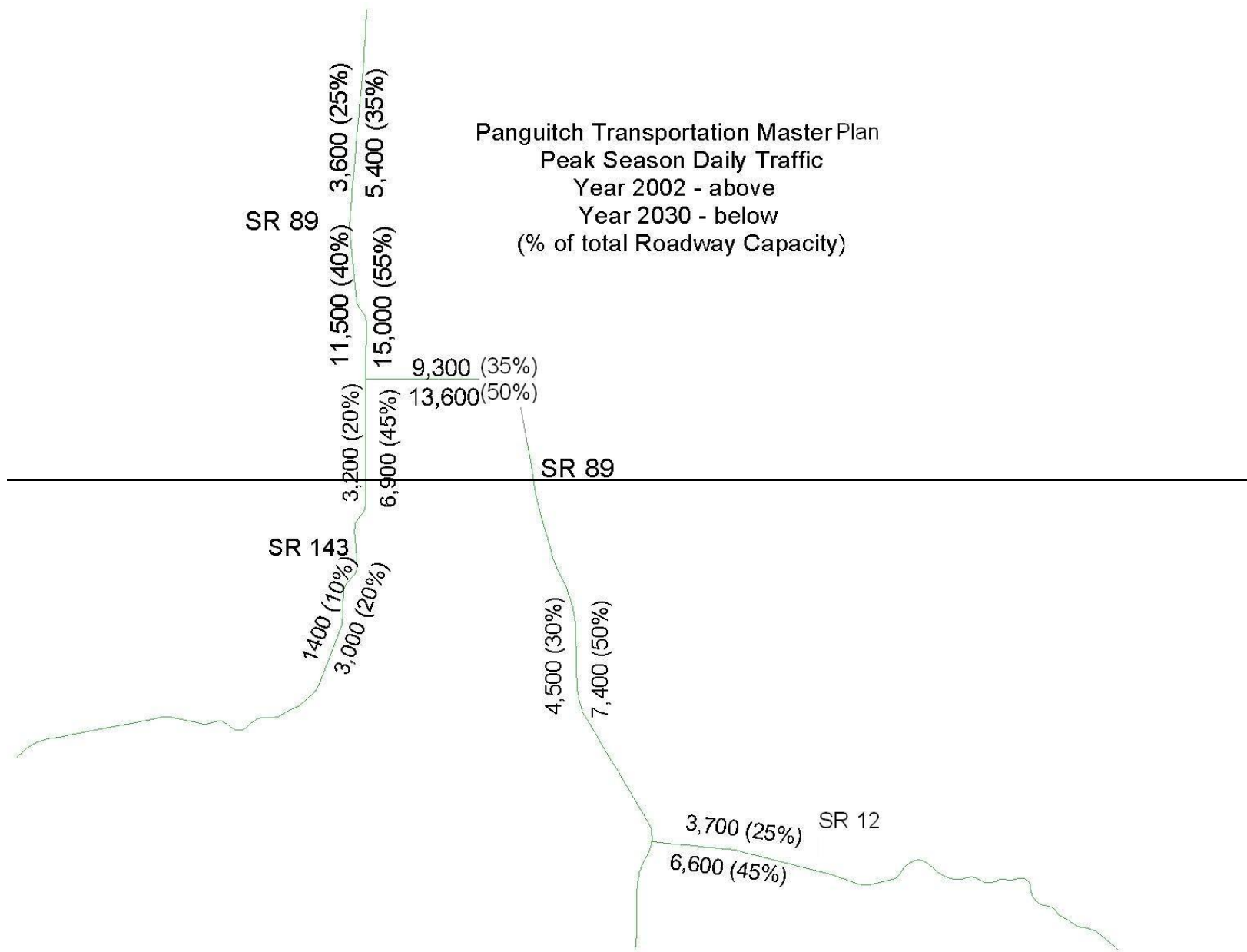
3.2 Traffic Forecast

The previous sections show that the population and employment are estimated to grow at about 1 to 2% per year. Traffic in the Panguitch area will grow at about the same rate which equates to a 50% growth over the next 30 years. In addition, traffic has historically grown at this rate over the previous 15 years. As discussed in the Traffic Counts section, summer traffic increases an additional 50% from the average traffic for the year.

Figures 12 and 13 show average annual daily traffic and peak season daily traffic for years 2002 and 2030. Also shown is the percentage of the roadway capacity the traffic will reach. A four lane highway like Main Street can carry about 27,000 vehicles a day before it reaches its capacity. A two lane highway like SR 12 can carry about 16,000 vehicles a day. Main Street will reach about 55% capacity during the peak season by the year 2030. All other roadways will operate at 50% or less in the year 2030.



Panguitch Transportation Master Plan
 Peak Season Daily Traffic
 Year 2002 - above
 Year 2030 - below
 (% of total Roadway Capacity)



4 Transportation Improvement Projects

4.1 Recommended Projects

The following table identifies transportation needs for Panguitch. These needs were identified through meetings where the TAC first identified the needs and second set priorities for projects.

Projects that are most important to Panguitch include:

- Phased improvements to the intersection of Main and Center streets
- Sidewalks near the elementary school, and Safe Routes to School Plan
- Cross walks on US 89 at 400 East, 100 East and 100 North
- Historic lighting continued out to the gateways on US 89, and
- A new gateway on SR-143.

Additionally, many concerns and issues revolve around how to provide safe and convenient travel for OHV's and bicycles.



Technical Advisory Committee waits to vote on the highest priority projects.

Transportation Needs and Cost Estimates

Location			ROW	Segment Length	ROW Cost	Project Cost	Total Cost
City	From	To					
Priority Projects							
600 South -New Construction	Main St	200 W	1.5	0.2	\$ 7,500.00	\$ 90,000.00	\$ 97,500.00
500 East - New Construction	100 N	River Lane	1.5	0.2	\$ 7,500.00	\$ 90,000.00	\$ 97,500.00
100 West - New Construction	400 N	600 N	1.5	0.2	\$ 7,500.00	\$ 90,000.00	\$ 97,500.00
Sidewalks (school routes)	various	various		0.1		\$ 10,000.00	\$ 10,000.00
Widen box culv. Industrial Park Road	Panguitch Creek			each		\$350,000.00	\$350,000.00
Widen box culv. west Center Street	Panguitch Creek			each		\$350,000.00	\$350,000.00
Widen industrial park road (6" Asphalt)	Main St.	800 W		1		\$670,000.00	\$670,000.00
Develop cross section standards	TMP						
Additional Needs							
Curb and Gutter	various	various		0.1		\$ 7,000.00	\$ 7,000.00
State Roads – Priority Project							
Improvements to intersection	Center and Main			lump sum	\$10,000.00	\$ 30,000.00	\$ 40,000.00
Traffic Signal @ Center and Main				lump sum			\$120,000.00
SR-143: Shoulder widening (4ft paved)	various	various		per mile			\$297,920.00
SR-143: Application for National Scenic Byway				lump sum		\$ 10,000.00	\$ 10,000.00
SR-143: Gateway				lump sum		\$ 80,000.00	\$ 80,000.00
Crosswalk Review	Center St.	100 East					
Crosswalk Review	Main St.	100 North					
Crosswalk Review	SR-89	400East					
Historic lighting expansion (3 Segments)	SR-89 and	SR-143				\$336,000.00	\$336,000.00
Additional Needs							
Ditch & Riprap (650 East on SR89)							
SR-143: Add passing lanes	various	various		per mile			\$448,000.00
Trail Improvements – Priority Projects							
OHV trail master plan				each		\$ 50,000.00	\$ 50,000.00
Economic impact study (bicycles, OHV, other)				each		\$100,000.00	\$100,000.00
Bicycle Route master plan (on & off road)				each		\$ 50,000.00	\$ 50,000.00
Additional Needs							
OHV gravel trail construction	various (per mile)	various	1	1	\$10,000.00	\$ 40,000.00	\$ 50,000.00
Bike and Ped. trail const. (3" Asphalt)	various (per mile)	various	1	1	\$10,000.00	\$204,000.00	\$214,000.00

4.2 Revenue Summary

4.2.1 Federal and State Participation

Federal and State participation is important for the success of implementing these projects. UDOT needs to see the Transportation Master Plan so that they understand what the City wants to do with its transportation system. UDOT can then weigh the priorities of the city against the rest of the state.

It is important for Panguitch to promote projects that can be placed on UDOT's five-year Statewide Transportation Improvement Program (STIP) as soon as possible. Coordination with UDOT's Region 4 District Engineer, Planning Engineer and Region Director will be practical.

4.2.2 City Participation

The City will fund the local Panguitch projects. The local match component and partnering opportunities vary by the funding source.

4.2.3 Impact Fees, Exactions and Special Improvement Districts

Special improvement districts (SIDs), and exactions can be major contributors to the revenue stream to fund projects. The Transportation Master Plan is a tool that provides technical analysis and justification to warrant establishing significant participation by those who qualify for impact fees, exactions, or SIDs.

4.3 Financial Potential

Previous sections of this chapter show significant shortfalls projected for the short-range and long-range programs. The following options may help offset all or part of the anticipated shortfalls:

- Increased transportation impact fees.
- Increased general fund allocation to transportation projects.
- General obligation bonds repaid with property tax levies.
- Increased participation by developers, including cooperative programs and incentives.
- Special improvement districts (SIDs), whereby adjacent property owners are assessed portions of the project cost.
- Sales or other tax increase.
- State funding for improvements on the county roadway system.
- Increased gas tax, which would have to be approved by the State Legislature.
- Federal-aid available under one of the programs provided in the federal transportation bill (TEA-21 is the current bill; SAFETEA will likely be passed in late 2004).



Increased general fund allocation means that General Funds must be diverted from other governmental services and/or programs. General obligation bonds provide initial capital for transportation improvement projects but add to the debt service of the governmental agency. One way to avoid increased taxes needed to retire the debt is to sell bonds repaid with a portion of the municipalities' State Class monies for a certain number of years.

Private developer participation provides a promising funding mechanism for new projects. Developers can contribute to transportation projects by constructing on-site improvements along their site frontage and by paying development fees. Municipalities commonly require developers to dedicate right-of-way and widen

streets along the site frontage. A negative side of the on-site improvements is that the streets are improved in pieces. If there are not several developers adjacent to one another at the same time, a continuous improved road is not provided. One way to overcome this problem is for the jurisdiction to construct the street and charge the developers their share when they develop their property.

Another way developers can participate is through development fees. The fees would be based on the additional improvements required to accommodate the new development and would be proportioned among each development. The expenditure of additional funds provided by the fees would be subject to the City's spending limit. However, development fees are often a controversial issue and may or may not be viable.

5 Planning Issues and Guidelines

This Chapter has two major sections. The first is a discussion of Guidelines and Policies and it focuses on guidelines to maintain and promote a safe and efficient transportation system in the future. The second section, Bicycles, identifies the role of bicycles in local transportation, and recommends how to include bicycles as a viable mode of transportation.

5.1. Guidelines and Policies

This section will describe some of the components of the transportation system and provide maintenance and operational guidelines to achieve a safe and efficient transportation system.

These guidelines address certain areas of concern that are applicable to the Panguitch study.

5.1.1. Access Management

This section will define and describe some of the aspects of Access Management for roadways and why it is so important. If properly implemented Access Management can make many of the roads in a system work better and operate more safely. There are many benefits to properly implemented access management. Some of the benefits include:

- Reduction in traffic conflicts and accidents
- Reduced traffic congestion
- Preservation of traffic capacity and level of service
- Improved economic benefits businesses and service agencies
- Potential reductions in air pollution from vehicle exhausts

In Panguitch, Center and Main Streets have numerous driveways, with vehicles entering and exiting businesses, residences and side streets, increasing the opportunity for accidents. In fact, accident analysis along US 89 in Panguitch shows a higher than expected rate for a this type of roadway.

5.1.1.1. Definition

Access management is the process of comprehensive application of traffic engineering techniques in a manner that seeks to optimize highway system performance in terms of safety, capacity, and speed. Access Management is one tool of many that makes a traffic system work better with what is available.

5.1.1.2. Access Management Techniques

There are many techniques that can be used in access management. The most common techniques are signal spacing, street spacing, access spacing, and interchange to crossroad access spacing. There are various distances for each spacing, dependant upon the roadway type being accessed and the accessing roadway. UDOT has developed an access management program and more information can be gathered from the UDOT website and from the Access Management Program Coordinator.

5.1.1.3. Where to Use Access Management

Access Management can be used on any roadway. In some cases, such as State Highways, access management is a requirement. Access management can be used as an inexpensive way to improve performance on a major roadway that is increasing in volume. Access management should be used on new roadways and roadways that are to be improved to prolong the usefulness of the roadway.

5.1.2. Context Sensitive Solutions

Context sensitive solutions (CSS) addresses the need, purpose, safety and service of a transportation project, as well as the protection of scenic, aesthetic, historic, environmental and other community values. CSS is an approach to transportation solutions that asks community members to help UDOT find, recognize and incorporate issues/factors that are part of the larger context such as the physical, social, economic, political and cultural impacts. When this approach is used in a project the project become better for all of the entities involved.

5.1.3. Recommended Roadway Cross Sections

Cross sections are the combination of the individual design elements that constitute the design of the roadway. Cross section elements include the pavement surface for driving and parking lanes, curb and gutter, sidewalks and additional buffer/landscape areas. Right-of-way is the total land area needed to provide for the cross section elements.

The design of the individual roadway elements depends on the intended use of the facility. Roads with higher design volumes and speeds need more travel lanes and wider right-of-way than low volume, low speed roads. The high use roadway type should include wider shoulders and medians, separate turn lanes, dedicated bicycle lanes, elimination of on street parking, and control of driveway access. For most roadways, an additional buffer area is provided beyond the curb line. This buffer area accommodates the sidewalk area, landscaping, and local utilities. Locating the utilities outside the traveled way minimizes traffic disruption in utility repairs or when changes in service are needed.

The hierarchy of cross-sections provided for are local (2 lanes), minor collector (3 lanes), major collector (3 lanes), and minor arterial roadways (5 lanes). Typical elements of the roadway cross sections are identified in the following sections. There are few dimensions used in street design that have been determined exactly by research. The cross-section generally represents a consensus of opinion based on operating experience. In that light, each of the pieces of the roadway design can be altered to better accommodate various conditions found in the study area.

- **Local Streets:** Local streets provide access to abutting land uses and service local traffic movement. Due to low traffic speeds and relatively small traffic volumes on the street, parking is usually allowed on the street and bicycles are allowed without a separate travel lane. The cross-section of a local street includes a 40-foot roadway. This allows two 12-foot lanes, two 8-foot parking, and two 10-foot buffers (each includes a 5-foot sidewalk, and a 5-foot landscaping and utility strip). The typical right-of-way is 60 feet for local streets.
- **Minor Collectors:** Collector streets provide for traffic movement between local streets and arterial streets and provide access to abutting land uses. The minor arterial is a three-lane section with a 60-foot roadway. This 60-foot right-of-way allows for two 12-foot lanes, a 12-foot center two-way left-turn lane, two 4-foot bicycle lanes, two 8-foot parking lanes, and two 10-foot buffers (each includes a 5-foot sidewalk, and a 5-foot landscaping and utility strip). The increased width of this type of roadway versus that of the local streets allows for the development of on-street bus stops or a separate right turn lane by eliminating the on-street parking near the intersection. Due to higher speeds and increased traffic volumes, bicyclists should be served by having a separate, dedicated travel lane. The typical right-of-way for minor collectors is 80 feet.
- **Major Collectors:** The three-lane, major collector includes a 64-foot roadway cross-section. This design allows for two 12-foot lanes, a 14-foot two-way left-turn lane, two 5-foot bicycle

lanes, two 8-foot parking lanes, and two 13-foot buffer zones (for sidewalk, landscaping and utilities). The typical right-of-way for a major collector is 90 feet.

- **Minor Arterials:** Arterial streets provide major through traffic movement between geographic areas. These roadways typically have some form of access control that limits the location of driveways. The minor arterial roadway includes 74-foot roadway cross-section. This cross-section allows for a 16-foot center lane for left turns, four 12-foot travel lanes, and two 5-foot bicycle lanes. There no on street parking due to potential conflicts with traffic. Any needed right-turn lanes can be provided with widening into the buffer area. Each side has a 13-foot buffer for sidewalk, landscape, and utilities. The right-of-way for minor arterials is generally 100 feet.

Federal Highway standard widths apply on the all roads that are part of the state highway system. Also, all federally funded roadways in Panguitch and Garfield County must adhere to the same standards for widths and design.

5.2. Bicycles and Pedestrians

Bicycles are allowed on all roadways, except where legally prohibited, and as such should be a consideration on all roads that are being designed and constructed and, as roadway improvements are taking place. Opportunities to include bicycle paths and increased shoulder width in conjunction with a roadway project should be taken whenever technically, environmentally, and financially feasible.

Panguitch has taken a proactive approach by working with various public agencies and private interests in developing and implementing a trails system within the area. Through the efforts of the city, community, and other interested parties a great deal of work has already been completed in establishing a defined trails system. Panguitch should continue to work with these groups in progressing the trails system as identified in The Upper Sevier Community Trails Plan document (attached).

The Governor's Legacy Trails Initiative was created as a means to continually improve the quality and quantity of motorized and non-motorized trails for health, fitness, recreation, transportation, and social interaction. One of the recommended trails initiative projects is a 9-mile unpaved trail in Red Canyon near Bryce Canyon. The city is encouraged to work towards development of this trail.

As bike facilities are planned, designed and constructed, it is important for Panguitch to review the connectivity of the trails systems. Connectivity of systems should play an integral role in the decision making process for potential projects. In order to provide for a better quality of life for the community, the trails should be accessible to all users and incorporate ADA requirements.

The trails, when constructed, may have slight variances in application type due to possible differences in the terrain at a specific trail location. However, regardless of the design type, the applicable design standards found in the AASHTO Guide for the Development of Bicycle Facilities should be followed, as well as the Manual on Uniform Traffic Control Devices (MUTCD) guidelines for appropriate signage of the trails system.

Every effort should be made to accommodate pedestrians throughout Panguitch City. An opportunity to include accessible sidewalks, while adhering to ADA requirements, during construction of other projects is encouraged. For the safety and convenience of pedestrian traffic, sidewalk placement should be free from obstructions or impediments such as utility poles, trees, bushes, etc. Developers should be encouraged to include sidewalk placement or improvements in their respective project development plans.

Sidewalks in residential areas should be at least 5-feet wide whenever adequate right-of-way can be secured. This will provide sufficient room and a level of comfort to persons walking in pairs or passing and will specifically allow for persons with strollers or in wheelchairs to pass. On major roadways, sidewalks at least 6-feet wide and with a 6 to 10-foot park strip is desirable. In pedestrian-focused areas, such as schools, parks, sports venues or theaters, and in hotel and market districts, even wider sidewalks are recommended to accommodate and encourage a higher level of pedestrian activity, especially where tourist use would be

expected. To ensure consistency of sidewalks throughout the area, UDOT's approved standard for sidewalks should be followed.

The city should be aware of, and coordinate with, the area schools' Community Councils, which are tasked with developing an access routing plan to provide a safe route to school. Safe Routes to school is an important issue for the TAC and listed as a priority for the community. The routing plan is to be reviewed and updated annually. Information regarding the Safe Routes to School program is available by contacting the Utah Department of Transportation's Traffic and Safety Division.

5.3. Enhancements Program

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) created the Transportation Enhancement program. The program has since been reauthorized in subsequent bills (i.e. TEA-21). The transportation Enhancement program provides opportunities to use federal dollars to enhance the cultural and environmental value of the transportation system. These transportation enhancements are defined as follows by TEA-21:

The term 'transportation enhancement activities' means, with respect to any project or the area to be served by the project, any of the following activities if such activity relates to surface transportation: provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs (including the provision of tourist and welcome center facilities), landscaping and other scenic beautification, historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals), preservation of abandoned railway corridors (including the conservation and use thereof for pedestrian or bicycle trails), control and removal of outdoor advertising, archeological planning and research, environmental mitigation to address water pollution due to highway runoff or reduce vehicle caused wildlife mortality while maintaining habitat connectivity, and establishment of transportation museums.

The Utah Transportation Commission, with the help of an advisory committee, decides which projects will be programmed and placed on the Statewide Transportation Improvement Program (STIP). Applications are accepted in an annual cycle for the limited funds available to UDOT for such projects. Applications for the current cycle are due in January, 2004. Check UDOT's web site for updated information.

5.4. Transportation Corridor Preservation

Transportation Corridor Preservation will be introduced as a method of helping Panguitch's Transportation Master Plan. This section will define what Corridor Preservation is and ways to use it to help the Transportation Master Plan succeed for the City.

5.4.1. Definition

Transportation Corridor Preservation is the reserving of land for use in building roadways that will function now and can be expanded at a later date. It is a planning tool that will reduce future hardships on the public and the city. The land along the corridor is protected for building the roadway and maintaining the right-of-way for future expansion by a variety of methods, some of which will be discussed here.

5.4.2. Corridor Preservation Techniques

There are three main ways that a transportation corridor can be preserved. The three ways are acquisition, police powers, and voluntary agreements and government inducements. Under each of these are many sub-categories. The main methods will be discussed here, with a listing of some of the sub-categories.

5.4.2.1.Acquisition

One way to preserve a transportation corridor is to acquire the property outright. The property acquired can be developed or undeveloped. When the city is able to acquire undeveloped property, the city has the ability to build without greatly impacting the public. On the other hand, acquiring developed land can be very expensive and can create a negative image for the City. Acquisition of land should be the last resort in any of the cases for Transportation Corridor Preservation. The following is a list of some ways that land can be acquired.

- Development Easements
- Public Land Exchanges
- Private Land Trusts
- Advance Purchase and Eminent Domain
- Hardship Acquisition
- Purchase Options

5.4.2.2.Exercise of Police Powers

Police powers are those ordinances that are enacted by a municipality in order to control some of the aspects of the community. There are ordinances that can be helpful in preserving corridors for the Transportation Master Plan. Many of the ordinances that can be used for corridor preservation are for future developments in the community. These can be controversial, but can be initially less intrusive.

- Impact Fees and Exactions
- Setback Ordinances
- Official Maps or Maps of Reservation
- Adequate Public Facilities and Concurrency Requirements

5.4.2.3.Voluntary Agreements and Governmental Inducements

Voluntary agreements and governmental inducements rely on the good will of both the developers and the municipality. Many times it is a give and take situation where both parties could benefit in the end. The developer will likely have a better-developed area and the municipality will be able to preserve the corridor for transportation in and around the development. Listed below are some of the voluntary agreements and governmental inducements that can be used in order to preserve transportation corridors in the city limits.

- Voluntary Platting
- Transfer of Development Rights
- Tax Abatement
- Agricultural Zoning

Each of these methods has its place, but there is an order that any government should try to use. Voluntary agreements and government inducements should be used, if possible, before any police powers are used. Police powers should be tried before acquisition is sought. UDOT has developed a toolkit to aid in corridor preservation techniques. This toolkit contains references to Utah code and examples of how the techniques have been used in the past and will be available soon.